

What is claimed is:

- 1 1. A branch prediction apparatus, comprising:
2 a base misprediction history register;
3 a meta predictor to receive an index value and a branch prediction to generate a
4 misprediction value in accordance with said base misprediction history register; and
5 a logic gate to receive said branch prediction and said misprediction value to generate a final
6 prediction.

- 1 2. The branch prediction apparatus of claim 1, wherein said base misprediction history
2 register includes misprediction history data.

- 1 3. The branch prediction apparatus of claim 1, further comprising an instruction that
2 provides said index value.

- 1 4. The branch prediction apparatus of claim 3, wherein said instruction is a branch
2 instruction.

- 1 5. The branch prediction apparatus of claim 4, wherein said final prediction determines a
2 branch for said branch instruction.

- 1 6. The branch prediction apparatus of claim 1, further comprising a branch predictor that
2 receives said index value and generates said branch predictor.

- 1 7. The branch prediction apparatus of claim 6, wherein said branch predictor utilizes a
2 prediction scheme to generate said branch prediction.

1 8. The branch prediction apparatus of claim 6, wherein said branch predictor includes a
2 target address field and a prediction table.

1 9. The branch prediction apparatus of claim 1, wherein said base misprediction history
2 register contains values of zero (0), and the misprediction value is not generated by said meta
3 predictor.

1 10. A method for predicting branches, comprising:
2 receiving an index value, a branch prediction value correlating to said index value, and a
3 misprediction history value at a meta predictor; and
4 generating a misprediction value at said meta predictor.

1 11. The method of claim 10, further comprising generating said branch prediction value at
2 a branch predictor.

1 12. The method of claim 11, further comprising receiving an index value at said branch
2 predictor.

1 13. The method of claim 10, further comprising generating a final prediction according to
2 said branch prediction and said misprediction value.

1 14. The method of claim 10, further comprising determining a final value, and updating
2 said meta predictor and said base misprediction history register according to said final value.

1 15. The method of claim 14, wherein said updating includes comparing said final value
2 to said branch prediction.

1 16. The method of claim 10, further comprising bypassing said meta predictor when said
2 misprediction history value contains all zeros (0).

1 17. A processor, comprising:
2 a branch predictor to generate a branch prediction;
3 a base misprediction history register;
4 a meta predictor that receives an index value, said branch prediction and base misprediction
5 history register data to generate a misprediction value.

1 18. The processor of claim 17, further comprising a final prediction to correlate to said
2 misprediction value and said branch prediction value.

1 19. The processor of claim 17, further comprising a logic gate to generate said final
2 prediction.

1 20. A computer readable medium having stored a plurality of executable instructions,
2 the plurality of instructions comprising instructions to:
3 receive an index value, a branch prediction value correlating to said index value, and a
4 misprediction history value at a meta predictor; and
5 generate a misprediction value at said meta predictor.

1 21. The computer readable medium of claim 20, further comprising an instruction to
2 generate said branch prediction value at a branch predictor.

1 22. The computer readable medium of claim 21, further comprising an instruction to
2 receive an index value at said branch predictor.

1 23. The computer readable medium of claim 20, further comprising an instruction to
2 generate a final prediction according to said branch prediction and said misprediction value.

1 24. A method for restoring a branch prediction apparatus following a branch misprediction
2 of a branch instruction, comprising:
3 restoring a base misprediction history register; and
4 restoring a branch predictor history register.

1 25. The method of claim 24, further comprising updating a branch predictor.

1 26. The method of claim 24, further comprising updating a meta predictor.

1 27. The method of claim 24, further comprising flushing an instruction pipeline
2 processing said branch instruction.